

What is claimed is:

1. A laminate film comprising:
a polymer core layer;
a resin layer disposed on a surface of said polymer layer; and
a metal layer deposited on a surface of said resin layer;
wherein the laminate film has metal adhesion of 2 or more; and
wherein the laminate film has O₂TR of 100 cc/m²/day or less at 38°C and 0% relative humidity as measured on a 15 µm laminate film elongated 9% in the machine direction.
2. The laminate film of claim 1, wherein the resin layer comprises an additive that enhances adhesion between the resin layer and the metal layer.
3. The laminate film of claim 1, wherein the polymer core layer comprises polyolefin.
4. The laminate film of claim 3, wherein the laminate film has a thickness of about 6 to 40 µm.
5. The laminate film of claim 1, wherein said resin layer comprises polyolefin.
6. The laminate film of claim 5, wherein said resin layer has a thickness of about 0.2 to 5.0 µm.
7. The laminate film of claim 1, wherein said resin layer comprises a polymer additive present in about 1 to 15 percent by weight of said resin layer.
8. The laminate film of claim 1, wherein said resin layer comprises about 10 to 10,000 ppm of an antiblock additive.

9. The laminate film of claim 8, wherein said antiblock additive is selected from the group consisting of silicas, aluminosilicates, and metal aluminosilicates.

10. The laminate film of claim 1, wherein said resin layer comprises a polypropylene resin.

11. The laminate film of claim 1, further comprising a heat sealable layer or a non-sealable, winding layer disposed on an opposite surface of said polymer core layer.

12. The laminate film of claim 11, wherein said heat sealable layer or non-sealable, winding layer comprises an antiblock additive.

13. The laminate film of claim 12, wherein said antiblock additive comprises silicas, aluminosilicates, or polymeric antiblocks such as crosslinked silicone polymer.

14. The laminate film of claim 12, wherein said antiblock additive comprises about 0.05 to 0.50 percent by weight of the heat sealable or non-sealable, winding layer.

15. The laminate film of claim 7, wherein said polymer additive comprises a crystalline, polyethylene wax.

16. The laminate film of claim 15, wherein said polyethylene wax has a molecular weight of 400 – 3000, a melting point of 80 - 132°C by ASTM D127, viscosity at 149°C of 2 – 170 centipoise by ASTM D3236 or viscosity at 99°C of 40 – 60 SSU by ASTM D88, needle penetration at 25°C of 15 – 0.0 dmm by ASTM D1321, and density at 25°C of 0.92 – 0.99 by ASTM D1298.

17. The laminate film of claim 7, wherein said polymer additive comprises a branched ethylene copolymer wax.

18. The laminate film of claim 17, wherein said ethylene copolymer wax has a molecular weight of 500 – 3000, a melting point of 90 - 120°C by ASTM D127, viscosity at 99°C of 55 – 120 SSU by ASTM D 88, needle penetration at 25°C of 13.0 – 2.0 dmm by ASTM 1321 and average branches per molecule of 0.5 – 4.0.

19. The laminate film of claim 7, wherein said polymer additive comprises a hydroxyl-terminated polyethylene wax.

20. The laminate film of claim 19, wherein said hydroxyl-terminated polyethylene wax has a molecular weight of 375 – 700, a melting point of 78 – 105°C by ASTM D127, a viscosity at 149°C of 2.0 – 10.0 centipoise by ASTM D3236, needle penetration at 25°C of 10.0 – 1.5 dmm by ASTM 1321, density at 25°C of 0.95 – 0.96 by ASTM D792, and hydroxyl number of 127 – 65 mg KOH/g by ASTM D222.

21. The laminate film of claim 1, wherein said polymer additive comprises a carboxyl-terminated polyethylene wax.

22. The laminate film of claim 21, wherein said carboxyl-terminated polyethylene wax has a molecular weight of 390 – 715, a melting point of 89 -- 110°C by ASTM D127, viscosity at 149°C of 5.0 – 17.0 centipoise by ASTM D3236, needle penetration at 25°C of 9 – 1.5 dmm by ASTM 1321, and acid number of 115 – 63 mg KOH/g by BWM 3.01A.

23. The laminate film of claim 1, wherein said heat-sealable layer or non-heat-sealable, winding layer has a thickness of about 0.5 – 5.0 μm .

24. The laminate film of claim 1, wherein said heat-sealable layer comprises a ternary ethylene-propylene-butene copolymer.

25. The laminate film of claim 1, wherein said non-sealable, winding layer comprises crystalline polypropylene whose surface is roughened so as to produce a matted surface.

26. The laminate film of claim 1, wherein said non-sealable, winding layer comprises a block copolymer blend of polypropylene and one or more other polymers whose surface is roughened so as to produce a matted surface.

27. The laminate film of claim 1, wherein said non-sealable, winding layer is treated to provide a surface for lamination or coating with adhesives and/or inks.

28. The laminate film of claim 1, wherein said metal layer is vapor deposited.

29. The laminate film of claim 1, wherein said metal layer has a thickness of 5 to 70 nm.

30. The laminate film of claim 1, wherein said metal layer comprises a metal selected from the group consisting of titanium, vanadium, chromium, maganese, iron, cobalt, nickel, copper, zinc, aluminum, gold, and palladium.

31. The laminate film of claim 1, wherein said metal layer comprises aluminum.

32. The laminate film of claim 1, wherein said O₂TR is 100 cc/m²/day or less at 38°C and 0% relative humidity as measured on a laminate film of 15 µm elongated 9% in the machine direction.

33. The laminate film of claim 1, wherein said polymer core layer comprises a polypropylene resin.

34. A laminate film comprising:

a polymer core layer;
a resin layer disposed on a surface of said polymer layer;
a metal layer deposited on a surface of said resin layer; and
means for enhancing adhesion between the resin layer and the metal layer.

35. A method for manufacturing a laminate film, comprising:
extruding a polymer core layer;
extruding a resin layer disposed on a surface of said polymer layer; and
extruding a metal layer deposited on a surface of said resin layer;
the laminate film having metal adhesion of 2 or more; and
the laminate film having O₂TR of 100 cc/m²/day or less at 38°C and 0% relative humidity as measured on a 15 µm laminate film elongated 9% in the machine direction.

36. A method for food packaging, comprising:
obtaining a laminate film and
covering food with the laminate film;
the laminate film comprising:
a polymer core layer;
a resin layer disposed on a surface of said polymer layer; and
a metal layer deposited on a surface of said resin layer;
wherein the laminate film has metal adhesion of 2 or more; and
wherein the laminate film has O₂TR of 100 cc/m²/day or less at 38°C and 0% relative humidity as measured on a 15 µm laminate film elongated 9% in the machine direction.